

REMARKS

The amendment to claim 1 is supported by the text starting at page 24, line 3:

*The lengths of the straight portions 47a, 48a are set in accordance with the amount of upward or downward displacement (vertical displacement) of the vehicle 11 during its travel. That is, ... the amount of vertical displacement of the vehicle 11 while it is running differs according to the condition of the road on which the vehicle 11 runs, the state of driving of the vehicle 11, the vehicle body rigidity of the vehicle 11, or the performance of the suspension system. Thus, **tests or calculations are performed beforehand** to calculate the amount of vertical displacement. The lengths of the straight portions 47a, 48a are determined in accordance with the amount of vertical displacement. In this case, if the amount of vertical displacement of the vehicle 11 is at most L, the vehicles 11, when colliding, are likely to be displaced vertically by up to 2L. Thus, the lengths of the straight portions 47a, 48a may be set at greater than 2L. (emphasis added)*

The length of the straight portion 48a of the front beam 48 is greater than the length of the straight portion 47a of the front beam 47.

It is noted that the vertical length 2L recited in amended claim 1 is a *structural* feature, although it is determined according to testing or calculating steps performed before construction. By optimizing the length of the vertical beam as claimed, the restriction imposed on the vehicle—in regard to streamlining or design for appearance¹—is minimized. The newly-recited feature therefore avoids the prior-art disadvantages of one vehicle riding up onto another during a collision (specification paragraph spanning pages 3-4) without a bulky front bumper (*id.*, page 4, lines 12-15) and meets the Applicants' object (*id.*, page 6, lines 9-14).

¹ The Applicants believe that an improvement in ornamental appearance should be given weight as an advantage provided by structure recited in a utility patent claim, even though that ornamental appearance would not properly be a feature of a utility patent claim.

In response to the official action:

[2-3] The Examiner objects to the drawings. Corrected substitute drawing sheets are attached, with changes suggested by the Examiner. No new matter is entered. Approval is requested.

[4] The Examiner objects to the specification. The specification is amended as the Examiner suggests.

[5] The claims are objected to. Claim 3 is amended to recite “rearwardly” as suggested. The Applicants note that no change to the recited subject matter is made, and the claim is still consistent with the disclosed embodiments, e.g., the embodiment of Fig. 11.

The objection to claim 21 is respectfully traversed, as the Applicants see no informality. Clarification is requested.

[2-3] Claims 1-5 are rejected under 35 U.S.C. §102 as being anticipated by Fageol (U.S. Patent 2,239,089). This rejection is respectfully traversed.

The Examiner points to Fig. 2 of Fageol, which is the only view that shows the front end of the bus (page 2, col. 1, lines 4-28), and asserts that the three beams 43, 45, 44, which are seen at the far end of the bus frame, anticipate all the features of claims 1-5.

The Applicants believe that this assertion is not supported in the reference. Because of its direction of view, Fig. 2 cannot disclose anything about the slope of the beams in the direction perpendicular to the paper, i.e., in the direction of being inclined “forwardly” or “rearwardly.” Neither does Fig. 2 show which parts are most forward. With respect, the Examiner infers features that are not actually disclosed, and the features of claims 1 and 3 are not anticipated by the reference itself.

Fageol does not disclose any relation between a vertical length of any of its frame members 43-45 and vertical displacement of the bus, as now is recited in claim 1. The description starting at page 2, col. 2, line 48 not mention either this feature or the slopes of the members.

The Examiner asserts that Fageol discloses a crush zone. With respect, there is no support for this assertion unless the entire bus is taken to be a "crush zone." The Applicants believe that safety design was primitive at the time of Fageol, that busses of the 1930's lacked any crush zones, and that no crush zone can be inferred.

The feature of claim 5, like the features of claim 1, is not actually disclosed by Fig. 2 of Fageol, because the depth location of the far beams cannot be determined.

[4-6] Claims 6, 7, & 9 are rejected under 35 U.S.C. §103 as being unpatentable over Fageol in view of Masuda (U.S. Patent 5,462,325). This rejection is respectfully traversed.

The Examiner points to Masuda's ridges 6 as anticipating the claimed buckling strength changing means; the Applicants respectfully disagree because Masuda states that the ridges 6 are for bending the bumper "to produce products of different curvatures by a single mold" (col. 3, line 46).

[7] Claim 14 is rejected under 35 U.S.C. §103 as being unpatentable over Fageol in view of Hirano (U.S. Patent 4,190,276). This rejection is respectfully traversed.

The Examiner asserts that the references motivate combination. As noted above, Fageol discloses no crush zone and provides no reason to modify a crush zone. Hirano discloses a crush member mounted on the front side of a bumper (Figs. 14-15) as an after-market, add-on item (col. 1, lines 6-9, 27; col. 3, lines 53-54; col. 4, lines 27-31; col. 6, lines 38 *ff.*). With respect, if the person of ordinary skill would have been motivated to combine Fageol and Hirano (not admitted), he or she would merely have bolted the Hirano bumpers onto the front of Fageol's bus. In that event, there would be no anticipation of "a cushioning member located *behind* the vertical beam" which is claimed.

Neither could there be anticipation of "a protrusion ... provided in a front end portion of the cushioning member," which is also recited: Hirano does not actually disclose the subject matter of claim 14. Hirano discloses a "conventional fluid type shock absorber 21" which is "received within" a polyhedral crush member 1 (col. 4, line 42). The Applicants see no

disclosure of a cushioning member behind, and a protrusion in front of, anything (exemplified by the Applicants' protrusions 39e, 40e in front of the straight portions 47a, 48a and the cushioning members 39, 40 behind the straight portions 47a, 48a, shown in the Applicants' Fig. 1).

[8] Claim 17 is rejected under 35 U.S.C. §103 as being unpatentable over Hirano in view of Fageol and Zurell (DE 4242303). This rejection is respectfully traversed for the reasons set out above.

[9] Claim 20 is rejected under 35 U.S.C. §103 as being unpatentable over the Applicants' Figs. 20, 21A, and 21B in view of Fageol. This rejection is respectfully traversed for the reasons set out above.

In view of the amendments and remarks, withdrawal of the rejections and objections, and allowance of all claims, is requested.

Respectfully submitted,

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